

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number  
**WO 2004/033470 A3**

(51) International Patent Classification<sup>7</sup>:  
C12P 19/34, C07H 21/02, 21/04, 19/00

C12Q 1/68,

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:

PCT/US2003/031483

(22) International Filing Date: 3 October 2003 (03.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/416,356

4 October 2002 (04.10.2002) US

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): WHAT-MAN, INC. [US/US]; 200 Wells Avenue, Newton, MA 02459 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): SMITH, Martin, A. [US/US]; 240 Christopher Street, Montclair, NJ 07043 (US). FOMOVSKAIA, Galina, N. [UA/US]; 17B new Street, Port Washington, NY 11050 (US). FOMOVSKY, Mikhail, A. [UA/US]; 17B new Street, Port Washington, NY 11050 (US).

(74) Agents: PIFFAT, Kathryn, A. et al.; Edwards & Angell, LLP, P.O. Box 9169, Boston, MA 02209 (US).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
2 September 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: METHODS AND MATERIALS FOR USING CHEMICAL COMPOUNDS AS A TOOL FOR NUCLEIC ACID STORAGE ON MEDIA OF NUCLEIC ACID PURIFICATION SYSTEMS

(57) Abstract: The present invention relates to methods for isolating and storing, nucleic acid from a sample containing nucleic acid, such as a cell sample or cell lysate. The nucleic acid is isolated on a solid phase medium, which is then dried, and which can be stored efficiently, such as at room temperature, in columns, tubes, and microwell plates having a wide variety of filters and other solid phase media, for extended periods of time, including days, weeks, and months. The invention provides methods for isolating and storing nucleic acid from a sample by applying the sample to a solid phase medium, retaining the cells, lysing the cellular retentate, drying the medium and retaining the nucleic acid, storing the nucleic acid for extended periods of time at room temperature and humidity, and optionally eluting the nucleic acid. The invention provides methods for storing nucleic acid-containing samples on a wide range of solid phase media in many types of tubes, columns, or multiwell plates, many of which are commercial available.

WO 2004/033470 A3

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/31483

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>			
IPC(7) : C12Q 1/68; C12P 19/34; C07H 21/02, 21/04, 19/00			
US CL : 435/6,91.1,91.2; 536/22.1,23.1,24.3,24.31,24.32,24.33			
According to International Patent Classification (IPC) or to both national classification and IPC			
<b>B. FIELDS SEARCHED</b>			
Minimum documentation searched (classification system followed by classification symbols)			
U.S. : 435/6,91.1,91.2; 536/22.1,23.1,24.3,24.31,24.32,24.33			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet			
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>			
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
Y	US 5,496,562 A (BURGOYNE) 05 March 1996 (05.03.1996), see whole document especially abstract.	1-76	
Y	US 5,756,126 A (BURGOYNE) 26 May 1998 (26.05.1998), see whole document especially abstract.	1-76	
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.			
<b>* Special categories of cited documents:</b>			
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search		Date of mailing of the international search report	
09 April 2004 (09.04.2004)		30 JUN 2004	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer <i>Valerie Bell-Harris for</i> Jeffrey Siew Telephone No. 571-272-1600	

**Continuation of Item 4 of the first sheet:**  
Title is greater than 17 words

Chemical Compounds for Nucleic Acid Storage on Media of Nucleic Acid Purification Systems

**Continuation of B. FIELDS SEARCHED Item 3:**

EAST, STN- biosis, medline, cancerlit, biotechds, lifesci, caplus, embase  
search terms: nucleic acid, fiber, filter, extraction